Claims

1. An attachment mechanism for attaching a component to a cylindrical instrument having a centerline, comprising:

legs having respective first and second ends, said legs being pivotally connected relative to each other at said first ends such that said second ends of said legs can be pivoted away from each other and toward each other, said legs being configured to be connected to said component, each leg having an engagement piece at its second end, said engagement piece being configured to engage around said cylindrical instrument, each engagement piece being oriented toward its corresponding leg at a fixed angle, said orientation of each of said engagement pieces to its corresponding leg positioning said engagement pieces to contact said instrument at contact points in order that said component is located at a known and constant distance from said centerline regardless of the diameter of said instrument.

2. The attachment mechanism of claim 1, wherein each engagement piece comprises a pair of rollers and wherein said rollers roll about said instrument such that said rollers engage said instrument at contact points that maintain said component at said distance from said centerline of said instrument.

3. The attachment mechanism of claim 1, wherein each engagement piece comprises a slider having a pair of pads and wherein said pads slide about said instrument such that said pads engage said instrument at contact points that maintain said component at said distance from said centerline of said instrument.

4. The attachment mechanism of claim 1, wherein said instrument has a plurality of working portions having different diameters, said engagement pieces contacting said plurality of working portions at different contact points such that said component is located generally said distance from said centerlines of said plurality of working portions.

5. The attachment mechanism of claim 1, wherein each engagement piece comprises a pair of rollers and wherein said instrument includes a first shaft having a first

diameter and a second shaft having a second diameter, said second diameter being greater than said first diameter, said rollers on said opposite legs rolling along said second shaft away from each other in order to maintain said component said distance away from said centerline of said second shaft, said rollers on said opposite legs rolling along said first shaft toward each other in order to maintain said component said distance away from said centerline of said first shaft.

6. The attachment mechanism of claim 1, wherein each engagement piece is a slider having a set of pads and wherein said instrument includes a first shaft having a first diameter and a second shaft having a second diameter, said second diameter being greater than said first diameter, said pads on said opposite legs sliding along said second shaft away from each other in order to maintain said component said distance away from said centerline of said second shaft, said pads on said opposite legs sliding along said first shaft toward each other in order to maintain said component said distance away from said centerline of said first shaft.

7. The attachment mechanism of claim 1, further including a separation piece joined to said legs at said first ends, wherein said separation piece includes a screw that extends through said separation piece and said legs, said screw engaging said legs such that rotation of said screw in a first direction causes said legs to evenly move closer to each other and rotation in a second direction causes said legs to evenly move away from each other.

8. The attachment mechanism of claim 1, further including a separation piece joined to said legs at said first ends, wherein said separation piece includes a base that receives said component such that said component is maintained said distance from said centerline of said instrument.

9. The attachment mechanism of claim 1, further including a separation piece joined to said legs at said first ends, wherein said separation piece is connected to a component base that snapably receives said component such that said component is located a fixed and known distance away from said centerline of said instrument.

10. The attachment mechanism of claim 1, wherein said instrument has a distal tip and said component is a localizing device that is located a fixed and known position relative to said centerline of said instrument and said distal tip, said localizing device communicating its position to a computer tracking system.

11. The attachment mechanism of claim 1, wherein said component is an electromagnetic receiver in communication with an electromagnetic transmitter and an electromagnetic tracking system, said receiver being a known and fixed position relative to said centerline of said instrument and said transmitter and communicating with said transmitter and tracking system.

12. A computer assisted surgical tracking system, comprising:

a surgical drill having a cylindrical instrument with a centerline;

an electromagnetic receiver;

a computer that displays an image of a surgical site; and

an attachment mechanism, said attachment mechanism including legs having respective first and second ends, said legs being rotatably joined to a separation piece at said first ends and each of said legs having an engagement piece at its second end, said engagement pieces being configured to engage around said cylindrical instrument, each engagement piece being oriented toward its corresponding leg at a fixed angle, said separation piece being configured to be connected to said receiver, said legs being adjusted such that said cylindrical instrument is received between said engagement pieces of said legs, said orientation of each of said engagement pieces to its corresponding leg positioning said engagement pieces to contact said instrument at contact points in order that said receiver is located generally a fixed and known distance from said centerline regardless of the diameter of said instrument, said receiver communicating the position of said instrument to said computer such that said computer displays an image of said instrument relative to said image of said surgical site.

13. The computer assisted surgical tracking system of claim 12, wherein each engagement piece comprises a pair of rollers and wherein said rollers roll about said instrument such that said rollers engage said instrument at contact points that maintain said receiver at said distance from said centerline of said instrument.

14. The computer assisted surgical tracking system of claim 12, wherein each engagement piece comprises a slider having a pair of pads and wherein said pads slide about said instrument such that said pads engage said instrument at contact points that maintain said receiver at said distance from said centerline of said instrument.

15. The computer assisted surgical tracking system of claim 12, wherein said instrument comprises a plurality of instruments having different diameters, said engagement pieces contacting said plurality of instruments at different contact points such that said receiver is located generally said distance from said centerlines of said plurality of instruments.

16. The computer assisted surgical tracking system of claim 12, wherein each engagement piece comprises a pair of rollers and wherein said instrument includes a first shaft having a first diameter and a second shaft having a second diameter, said second diameter being greater than said first diameter, said rollers on said opposite legs rolling along said second shaft away from each other in order to maintain said receiver said distance away from said centerline of said second shaft, said rollers on said opposite legs rolling along said first shaft toward each other in order to maintain said receiver said distance away from said centerline of said first shaft.

17. The computer assisted surgical tracking system of claim 12, wherein each engagement piece comprises a slider having a pair of pads and wherein said instrument includes a first shaft having a first diameter and a second shaft having a second diameter, said second diameter being greater than said first diameter, said pads on said opposite legs sliding along said second shaft away from each other in order to maintain said receiver said distance away from said centerline of said second shaft, said pads on said

opposite legs sliding along said first shaft toward each other in order to maintain said receiver said distance away from said centerline of said first shaft.

18. The computer assisted surgical tracking system of claim 12, wherein said separation piece includes a screw that extends through said separation piece and said legs, said screw engaging said legs such that rotation of said screw in a first direction causes said legs to evenly move closer to each other and rotation in a second direction causes said legs to evenly move away from each other.

19. The computer assisted surgical tracking system of claim 12, wherein said separation piece is connected to a receiver base that snapably receives said receiver such that said receiver is located said fixed and known distance away from said centerline of said instrument.

20. A method for attaching a localizing device to a cylindrical surgical instrument, comprising:

providing a clip shaped attachment mechanism having legs with engagement pieces at a first end and said localizing device at a second end;

positioning said attachment mechanism about said instrument such that said instrument is received between said engagement pieces of said legs; and

moving said engagement pieces about said instrument such that said engagement pieces contact said instrument at contact points in order that said localizing device is maintained a desired distance from a centerline of said instrument.